TAP

The Trajectory Analysis Planner (TAP) uses an innovative, statistics-based approach to give oil spill contingency planners real-world answers at the click of a mouse. TAP answers the crucial question in any Area Contingency Plan: how do I develop a plan that protects my area against likely spills?

TAP graphically uses the results of thousands of simulated oil spills to help emergency planners understand and anticipate many possible outcomes. Planners use these statistically valid scenarios to develop realistic local-area contingency plans for oil spill response, as required by the Oil Pollution Act of 1990.

Planning Tasks:

- Assessing potential threats from possible spill sites to a given sensitive location
- Determining which shoreline areas are likely to be threatened by a spill originating from a given location
- Assessing the probability that a certain amount of oil will reach a given site within a given time period
- Estimating the levels of impact on a given resource from a spill
- Analyzing shortfalls of response personnel and equipment

TAP draws on a database of thousands of modeled spill trajectories, created using historical wind patterns and both tidal and non-tidal circulation. The TAP II interface helps response planners understand characteristics of the probable oil spills in a given region. Understanding these characteristics allows responders to plan not only for one or a few possible high-impact events, but to determine the best overall plan for many events, across the entire spectrum of probabilities and levels of impact.

Graphical Analysis

Graphical output from TAP is presented in four modes:

1. Threat Zone Analysis helps answer the question: Where might a spill occur that could threaten a shoreline location of concern? The user selects a receptor site of interest (perhaps a sensitive wetland), and is provided with a color contour map of the entire bay, indicating the likelihood of oil reaching the selected receptor site from any location in the bay.

2. Shoreline Impact Analysis helps answer the question: If oil is spilled at a given spot, what shoreline locations are likely to be impacted? A spill source site in the bay is selected,

and a color map is presented that indicates the likelihood that oil from a spill at that location will reach each of the shoreline receptor sites.

3. Site Oiling Analysis provides a way to visualize how a particular receptor site is likely to be oiled by a spill originating at a particular location. The user selects a spill site and a receptor site and is presented with a graph showing the percentage of modeled spills that resulted in a given amount or more of oil reaching the site in the selected time-period.

4. Resource Analysis provides data on the quantity of a given resource impacted by the modeled spills, or the level of response required to adequately address the impacts of those spills. The user specifies a spill site and a resource of interest, and TAP II generates a graph that indicates the total costs of each of the modeled spills in terms of that resource. The values on this graph are the costs of oil impacting each site at greater than its LOC, summed over all the sites for which the LOC is exceeded. The cost of a site could be the number of nesting birds at that location, or the length of boom required to protect the site, or virtually any resource of interest, in any appropriate unit.

Current Status:

TAP is now operational for San Francisco Bay, CA; San Diego Bay, CA; and Kaneohe Bay, HI. These locations include NOAA's Environmental Sensitivity Index data. TAP is under continued development to extend its capabilities to include accounting for cleanup and response efforts, including booming and skimming. This will allow users to assess the efficacy of different possible response options in a statistical framework.

To order a copy of TAP for one of the existing regions, or for additional information visit the website: **http://response.restoration.noaa.gov**, email: TAP@hazmat.noaa.gov, or call: 206/526-6317.
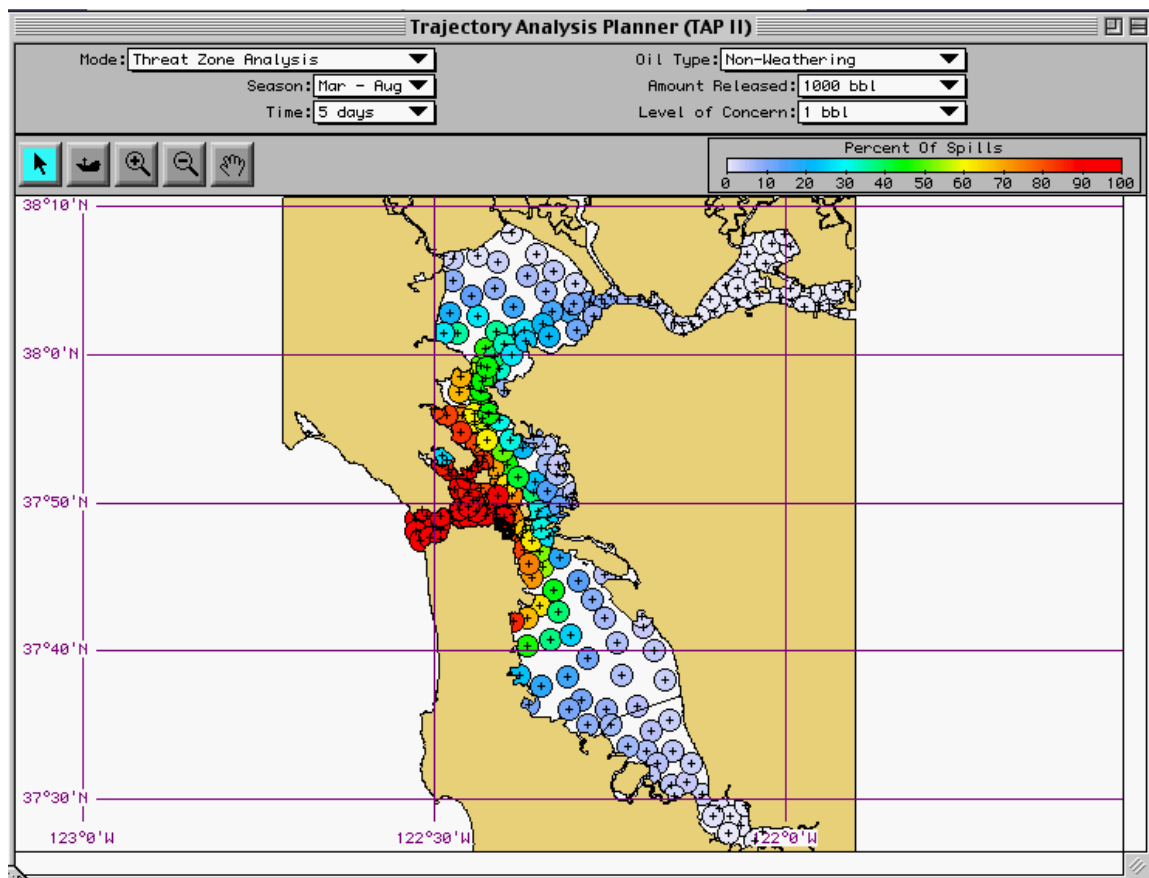
An example of Threat Zone Analysis for a part of San Francisco Bay. Given the size, type and season of a potential spill, the colors indicate the percentage of modeled spills that brought oil (in an amount greater than your level of concern, LOC) to the selected receptor site within one day.